

## CLAIMS

What is claimed is:

1. A multi-volume disk array management method for use on a multi-disk storage unit having a number of disks for the purpose of allowing the multi-disk storage unit to provide  
5 at least two logical volumes for storing data in the logical volumes with at least two levels of fault tolerance;

the multi-volume disk array management method comprising:

(1) logically dividing the storage space of each of the disks in the multi-disk storage unit into a number of partitions;

- 10 (2) organizing at least two selected subgroups of partitions in the disks of the multi-disk storage unit into at least two logical volumes; and

(3) setting the storage property of each of the logical volumes in the multi-disk storage unit to a user-specified level of fault tolerance.

2. The multi-volume disk array management method of claim 1, wherein the multi-  
15 disk storage unit is a RAID-compliant storage unit.

3. The multi-volume disk array management method of claim 1, wherein in said step (1), Linux's FDISK disk management utility is utilized to logically divide the storage space of each of the disks in the multi-disk storage unit into a number of partitions.

4. The multi-volume disk array management method of claim 1, wherein in said step  
20 (1), all the partitions are set to be equal in size.

5. The multi-volume disk array management method of claim 2, wherein in said step (3), each user-specified level of fault tolerance is a RAID-compliant level of fault tolerance.

6. A multi-volume disk array management system for use with a multi-disk storage unit having a number of disks for the purpose of allowing the multi-disk storage unit to provide at least two logical volumes for storing data in the logical volumes with at least two levels of fault tolerance;

5 the multi-volume disk array management system comprising:

a user interface for receiving user-specified settings related to the management of the overall storage space of the multi-disk storage unit;

a storage-space partitioning module, which is capable of logically dividing the storage space of each of the disks in the multi-disk storage unit into a number of partitions

10 based on the user-specified settings from the user interface;

a logical-volume organizing module, which is capable of organizing at least two selected subgroups of partitions in the disks of the multi-disk storage unit into at least two logical volumes based on the user-specified settings from the user interface; and

a storage-property setting module, which is capable of setting the storage property  
15 of each of the logical volumes in the multi-disk storage unit to a user-specified level of fault tolerance based on the user-specified settings from the user interface.

7. The multi-volume disk array management system of claim 6, wherein the multi-disk storage unit is a RAID-compliant storage unit.

8. The multi-volume disk array management system of claim 6, wherein the storage-  
20 space partitioning module is Linux's FDISK disk management utility.

9. The multi-volume disk array management system of claim 6, wherein the partitions created by the storage-space partitioning module are all equal in size.

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10. The multi-volume disk array management system of claim 7, wherein the user-specified level of fault tolerance is based on the RAID-compliant levels of fault tolerance.

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